

WATER-STRIDERS FROM TERRITORIO AMAZONAS OF VENEZUELA

(Hemiptera: Hydrometridae, Veliidae)

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The insects enumerated in this paper were collected by the junior author during a scientific expedition, sponsored by the University of Puerto Rico, to the Marahuaca Mountains of the Pacariama range, in Territorio Amazonas, Venezuela, from February to July, 1950. The route followed by the expedition was by the Cunucunuma River, to the north of Mount Duida, or savannah Culebra, and from here east then southeast of the Marahuaca Mountains. Collections were also made along the route from Puerto Ayacucho, capital of the Territorio Amazonas, by the Orinoca river to the Cunucunuma.

The collection contains 48 specimens of water-striders divided among the families Hydrometridae and Veliidae. Of the veliids, one genus and four species are described as new to science. The types of the new species are in the Drake Collection, paratypes in collections of both authors.

Family HYDROMETRIDAE

HYDROMETRA GUIANANA Hungeford and Evans

Hydrometra guianana Hungeford and Evans, Ann. Mus. Nat. Hung., 28:94, pl. 10. 1934.

Six specimens. Territorio Amazonas, upper Cunucunuma river, Julian. May 27, 1950, collected in a small creek in the mountains on the trail from Camp Culebra, north of Mount Duida, to Mount Marahuaca, elevation 2,000 feet. The species lives in quiet waters protected from the slowly moving currents by fallen branches. The male processes are elongate-oval in outline. Sometimes, the stiff bristles on the posterior end of the periphery of the processes are much reduced, and thus appear open behind. Other specimens are at hand from Barinites, Venez., and Satipo, Peru.

Family VELIIDAE

VELIA RECENS Drake and Harris

Velia recens Drake and Harris, Proc. Biol. Soc. Wash., 48:192. 1935.

Four specimens, taken in water-pockets in bromeliads at Camp

Benitez, foot of the northern slope of Mount Marachuaca, elevation 4000 feet. No specimens of this insect were taken in temporary rain pools on the ground in the vicinity of the plants. Associated with the water-strider in the plant, were the larvae of *Proniomyia*, larvae of *Culex (Micrades) corethrella* and some larvae of aquatic Coleoptera. Another species of a small water-strider, *Microvelia distanti* Lundblad, was taken in a bromeliad habitat in Trinidad, B. W. I. Other specimens of *V. recens* are at hand from Panama and British Honduras.

MICROVELIA PUCHELLA Westwood

Microvelia puchella Westwood, Ann. Soc. Ent. France, 3:647, pl. 6, fig. 5. 1834.

Puerto Ayacucho, Territorio Amazonas, 1 specimen, June 15 and 1 specimen, Nov. 12-23, 1950. This is one of the commonest water-striders in South, Insular and Central America.

MICROVELIA AYACUCHANA Drake and Capriles, sp. new

Apterous forms Moderately large, subfusiform, widest at base of thorax, fuscous-black or blackish with a transverse brownish or yellowish brown band near the middle of pronotum. Pubescence very short, inconspicuous, dark brown. Body beneath testaceous to brown with sides dark fuscous.

SIZE: Length, 2.50-2.75.; width, 0.80-1.00 mm.

HEAD: Width across eyes, 0.75 mm. Interocular space slightly greater than the combined width of both eyes. Eyes large, dark fuscous. Head moderately convex above with distinct median line. Rostrum stout, reaching beyond middle of mesosternum, yellowish brown with apex black. Antennae long, slender, shortly pilose, without bristly hairs, brownish black with base tending to be paler; segment I moderately incrassate, slightly bowed; II much more slender than I but stouter than III; III and IV slender, the latter feebly thicker; formula—I, 30; II, 22; III, 30; IV, 35.

THORAX: Pronotum short, not produced posteriorly or overlapping mesonotum; mesonotum practically twice as long as pronotum, broadly truncate behind; metanotum about as long as pronotum.

LEGS: Very long, slender, with all femora unarmed and nearly equal in thickness. Length of middle femora, 0.95 mm.; tibiae, 0.81 mm. Length of hind femora, 1.14 mm.; tibiae, 1.30 mm. Intermediate and hind tarsi long; formula of middle tarsi—I, 20; II, 20 and of hind tarsi—I, 30; II, 24.

ABDOMEN: Length, 1.50 mm. Narrowed posteriorly; above ferruginous-testaceous with pale markings.

MALE: Femora feebly thicker near base than in other legs. Abdomen slowly narrowed posteriorly; connexiva not produced behind. Last venter unusually long, longer than the two preceding segments, with a very large broadly U-shaped notch at the middle, the median length and width of notch at apex almost equal. First genital segment singularly modified on underside, roundly impressed at base then strongly produced downwards at the apex into a long tongue-like projection which is pointed directly ventrally, a little tapering apically and with the underside shallowly grooved on median line; above with hind margin of first segment broadly emarginate; second segment small, not modified.

FEMALE: Distinctly broader than male. Abdomen abruptly narrowed behind the middle, thence almost parallel-sided to apex. Connexiva a little wider than in male, strongly produced posteriorly into a long pointed process, which is wide at base, then narrowed beneath to apex and moderately hairy. Last venter very long, occupying most of posterior constricted part of abdomen.

MACROPTEROUS FORM: Length, 2.75 mm.; width (across humeral angles), 1.00 mm. Widest at humeral angles, thence slowly narrowed posteriorly. Pronotum with moderately prominent humeral angles, median length greater than widest part (80:70). Hemelytra a little longer than abdomen, fuscous with cells much paler and veins darker.

TYPE (male) and **ALLOTYPE** (female), both apterous, Puerto Ayacucho, Territorio Amazonas, Venez., June 15, 1950. *Paratypes:* 3 apterous and 1 macropterous specimen, taken with type, also 1 specimen from same locality, May 15, 1950.

This singular species belongs to the group of *Microvelia* Westwood, which have a very short pronotum in the apterous form. The greatly modified first genital segment and deeply notched last ventrite in the male and strongly produced apically connexiva in the female separate this species at once from its congeners.

MICROVELIA DUIDANA Drake and Capriles, sp. new

APTEROUS FORM: Small, robust, fuscous-black with a broad transverse band in front as well as posterior margin of pronotum brownish or testaceous. Antennae dark fuscous. Pubescence dense, short, dark in dark areas and pale in testaceous markings. Body beneath fuscous-black. Legs fuscous with coxae, trochanters, and basal part and most of underside of femora testaceous.

SIZE: Length, 1.65-1.75 mm.; width, 0.62-0.75 mm.

HEAD: Width across eyes, 0.50 mm. Broad, convex above, the median impressed line distinct. Rostum stout, testaceous with apical two-fifths blackish, extending on mesosternum. Antennae rather short, stout, shortly pilose, all segments with a few long dark bristly hairs; segment I very stout, enlarged apically; II much slenderer than I, thicker than III, the latter feebly thinner than IV; formula—I, 15; II, 11; III, 14; IV, 19.

THORAX: Pronotum very large, strongly produced posteriorly, covering dorsally the rest of thorax, coarsely pitted, wider than long (50:30), very broadly and slowly rounded behind, the pale markings variable in width, sometimes very narrow. Pro- and mesosternum furrowed on median line, the sides strongly rounded posteriorly on mesosternum.

LEGS: Rather short, stout, dark fuscous with coxae, trochanters and base of femora above and most of ventral surface testaceous; pubescence short with longer pale hairs beneath; all femora unarmed and about the same thickness; segments of intermediate tarsi subequal in length (14:13); hind tarsi with basal segment feebly shorter (10:12). Hind femora and tibiae subequal in length (40:42); middle femora slightly longer than tibiae (35:30).

ABDOMEN: Length, 1.00 mm. Fuscous-black without color markings. Entire body beneath as well as venter blackish. Female with connexiva and abdomen wider than in male, the connexiva strongly reflexed behind and with the tergites so wide that the margins of the reflexed connexiva do meet within. Last venter of female long, almost twice as long as preceding segment, slowly narrowed posteriorly; connexiva not produced posteriorly, rounded behind. Male with abdomen slowly narrowed posteriorly, the connexiva rounded behind; last segment of venter nearly as long as two preceding, distinctly compressed laterally; first genital segment beneath mostly concealed within abdomen, above with hind margin rounded emerginate.

WINGED FEMALE: Larger and stouter than apterous form, 2.15 mm. long. Head mostly brown above. Pronotum with median part in front and hind margin narrowly brown, pitted, wider than long (80:60). Hemelytra slightly longer than abdomen, brownish fuscous with cells quite pale and veins darker.

TYPE: (male) and ALLOTYPE: (female), both apterous, and 12 *paratypes*, summit of Mount Duida, Territorio Amazonas, Venez., June 2-3, 1950, approximately 12,000 feet elevation. Paratype, 1

specimen, San Fernando de Atabapo, Territorio Amazonas, Venez., June 5, 1950.

This is a typical species of the group of *Microvelia* which have the pronotum in the apterous form strongly produced posteriorly so as to cover the dorsal surface of the meso- and metanotum. It is probably most closely related to *M. marginata* Uhler, but has stouter antennae and pale spots in the cells of hemelytra. The apterous form of the latter is unknown. Other species with similarly enlarged pronotum in the apterous condition are *M. limaiana* Drake, *M. austriana* Bueno, *M. hidalgoi* McKinister and *M. refescens* Champion.

OIOVELIA Drake and Capriles, gen. new

Head strongly deflected in front of eyes, distinctly longer in front of an eye than and length of an eye; longitudinal median line distinct; eyes moderately large, their hind margins touching front margin of pronotum, the interocular space large; ocelli absent. Antennae moderately long, rather stout; segment I longest, stoutest, slightly bowed. Legs moderately long, slender, the hind femora not passing tip of abdomen. All tarsi stout, composed of three segments, the last segment with a deep wide cleft at middle and with three chitinous claws arising from the bottom of a cleft as in figure 1; cleft very wide, with outer lobe almost twice as long as inner lobe; claws sickle-shaped, the blade of the middle claw only about one-fourth as wide as other two, which are equal in width: all three claws of equal length with their tips just attaining apex of longer lobe. Hemelytra scarcely extending beyond apex of abdomen, with veins forming a few closed cells. Other characters as in the genus *Velia* Latreille.

Type of genus, **OIOVELIA CUNUCUNUMANA** Drake & Capriles, sp. new

Very similar in appearance to the genus *Velia*, but easily separated from it by the stout tarsi, which have the terminal segment widely and deeply divided in the middle at the apex, and with three blade-like claws attached at the bottom of the cleft; claws subequal in length to longer lobe. Sometimes, the claws rest with the flat sides of their blades fitting closely together and then may appear like only one or two claws unless separated. The middle claw is as long as the others, but is very much narrower and all are distinctly sickle-shaped. In *Velia*, the last tarsal segment is not divided longitudinally at the apex, and there are only two claws, both long and of the same size.

OIOVELIA CUNUCUNUMANA Drake and Capriles, sp. new

MACROPTEROUS FORM: Moderately large, moderately robust, fuscous-brown with base of head and broad median part of pronotum reddish brown. Hemelytra black with a broad basal whitish spot, which extends apically as far as apex of pronotum. Abdomen beneath fuscous or dark fuscous with a bluish tinge. Thorax beneath darker, also with some bluish. Legs fuscous-black, beneath fuscous, coxae, trochanters and bases of femora testaceous. Antennae fuscous-black, all segments concolorous. In one paratype, most of head and pronotum reddish brown.

HEAD: Width across eyes, 0.75 mm. Eyes dark brown to fuscous. Head in front of eyes beset with numerous, long, stiff, dark hairs. Rostrum black or fuscous, extending between middle coxae, becoming black apically. Antennae shortly pilose, fuscous-black, with a few bristly hairs; segment I moderately incrassate, slightly bowed, a little enlarged apically, stouter than II; II slenderer than III; IV scarcely thicker than III, tapering a little beyond the middle; formula—I, 48; II, 40; III, 30; IV, 34.

THORAX: Pronotum distinctly longer than wide (120:100), coarsely pitted, with a few scattered, erect, dark, inconspicuous hairs, with hind margin rounded; humeral angles a little raised. Sides of

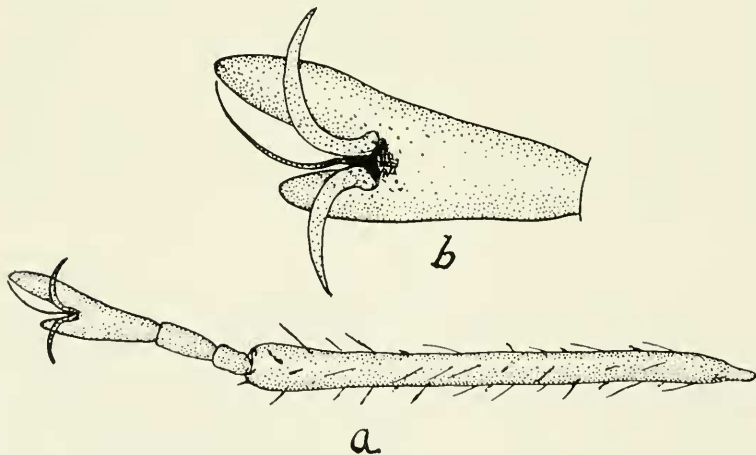


Fig. 1. Left hind leg of *Oiovelia cunucunumana*, new gen. & sp.; a—femur and tibia; b—last tarsal segment showing deep cleft with 3 tarsal claws (middle claw with narrow blade, only about one-fourth as wide as other blades).

thorax beset with numerous, erect, dark hairs. Legs moderately stout, unarmed; femora scarcely dilated, the middle and hind fe-

mora about equal in thickness, the fore femora slightly enlarged near base and there a little thicker than others. Hind femora a little shorter than tibiae (56:68); intermediate femora and tibiae about subequal in length (52:50). Formulas of tarsal segments: Fore legs—I, 3; II, 4; III, 13: Middle legs—I, 4; II, 9; III, 15: Hind legs—I, 4; II, 9; III, 16. Claws of all three pairs of legs as in figure 1.

ABDOMEN: Clothed beneath with short pubescence, the sides with numerous stiff dark hairs: connexiva clothed on outer margins with numerous, erect, dark brown hairs. Hemelytra concealing dorsal surface of abdomen, save outer edge of connexiva; veins distinct, the cells distinct but not plainly countable without removing hemelytra from body, last segment of venter in female much longer than preceding segment. Male and brachypterous forms unknown.

TYPE (female) and 2 **PARATYPES** (female), all apterous, Culebra, north of Mount Duida, Territorio Amazonas, Venez., July 1-4, 1950.

In general aspects, this species resembles *Velia nexa* Drake and Harris, but it is larger and has much shorter and stouter antennae. The tarsal segments are also much stouter with the terminal segment widely divided and armed with three chitinous claws, which are attached at the bottom of the cleft.

RHAGOVELIA CULEBRANA Drake and Capriles, sp. new

APTEROUS FORM: Moderately elongate, fusiform, blackish with some bluish lustre on under surface; legs black with base of femora, coxae and trochanters testaceous. Antennae fuscous-black with base narrowly testaceous. Pronotum sutured off from mesonotum, not produced posteriorly, bluish black with transverse brownish band in front.

SIZES Length, 3.20-3.75 mm.; width, 1.30-1.45 mm.

HEAD: Width across eyes, 0.94 mm. Narrowest part of interocular space about as wide as an eye. Eyes large, dark fuscous. Head impressed and shallowly furrowed behind median line, with a few dark bristly hairs in front. Rostrum very stout, black-fuscous, shining, extending to base of mesosternum. Antennae long, with a few, scattered, dark, bristle-like hairs on two basal segments; formula—I, 85; II, 48; III, 54; IV, 46.

THORAX: Pronotum very short, concave behind, much wider than long, distinctly sutured off from mesonotum; mesonotum very large, moderately convex above, moderately narrowed posteriorly, truncate at apex, median line and greatest width subequal (50:50).

Posterior part of pronotum and mesonotum clothed with fine, dark brown, semierect hairs.

MALE: Abdomen strongly narrowed posteriorly, entire dorsal surface clothed with fine dark hairs, the hairs same size as hairs on posterior part of thorax. Venter with an unusually large basal swollen area, which is somewhat like an isosceles triangle in outline with the apex greatly attenuated in form of a narrow and rather high ridge or carina on the last two ventrites (interrupted at sutures); on each side of dorsal surface of swollen area beset with a dense deep fringe of rather long, brownish, upright hairs. Genital segments black; first segment above long, truncate behind. Coxae unarmed. Hind legs clothed with very long brownish hairs, the femora and tibiae with some longer stiff black hairs; coxae stramineous; femora not strongly incrassate, thickest on basal half, armed beneath with a long spine in front of middle, from there to apex with a row of short dark teeth; tibiae unarmed, with short stout spur at apex, slightly shorter than femora (150:160); tarsal segments II and III subequal. Intermediate legs long, slender, also with a few long stiff hairs; femora very long, much longer than tibiae (180:120); tarsal segment II longer than III (72:64).

FEMALE: Broader than male. Legs long, slenderer than in male, all femora rather slender and nearly equal in thickness; hind femora beneath with a long outwardly bent dark spine just before the middle, thence to apex with short dark teeth. Connexiva broader than in male, blunt at apex, there clothed with rather long dark hairs. Last segment of venter long, less than twice as long as preceding segment. Winged forms unknown.

TYPE: (male), ALLOTYPE: (female) and 8 PARATYPES, *Culebra*, north of Duida, Territorio Amazonas, Venez., April 7-16, 1950. *Paratypes*. 4 specimens, upper Cumucunuma river, Territorio Amazonas.

This species is at once set off from its congeners of the group of *Rhagovelia* with very short and distinctly sutured off pronotum in the apterous form by the large and strongly swollen area at the base of the venter in the male.